

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A ferroelectric memory device comprising a plurality of ~~having plural~~ memory cells, each memory cell including ~~composed of a~~ respective memory cell transistor and a respective memory cell capacitor, such that the ferroelectric memory device includes a plurality of memory cell transistors and a plurality of memory cell capacitors, wherein

wherein each ~~said~~ respective memory cell capacitor comprises:

_____ a lower electrode ~~that is~~ connected to a bit line via the respective memory cell transistor;

_____ a ferroelectric layer ~~that is~~ formed on an upper surface of the lower electrode and ~~has~~ having a width direction that is the same as a width direction of the lower electrode ~~as its width direction~~; and

_____ an upper electrode ~~that is~~ formed on an upper surface of the ferroelectric layer and ~~has~~ having a width direction that is the same as the width direction of the lower electrode ~~as its width direction~~,

wherein the ~~said~~ lower electrodes ~~electrode~~ of the ~~respective~~ memory cell capacitors ~~capacitor is~~ are independent from one another ~~for each of the memory cell capacitors~~,

wherein the ~~said~~ upper electrodes ~~electrode~~ of the ~~respective~~ memory cell capacitors ~~capacitor constitutes~~ form a continuous plate electrode covering the lower electrodes of ~~that is~~ ~~common to the plural~~ memory cell capacitors, and

wherein the width of ~~said~~ each respective upper electrode is narrower than the width of ~~the~~ each respective ferroelectric layer.

Claim 2 (Currently Amended) The ferroelectric memory device as defined in Claim 1

wherein the width of ~~the~~ each respective lower electrode is narrower than the width of ~~the~~ each respective ferroelectric layer.

Claim 3 (Currently Amended) The ferroelectric memory device as defined in Claim 2

wherein the width of ~~the~~ each respective upper electrode and the width of ~~the~~ each respective lower electrode are substantially the same, and

wherein a ~~the~~ position of the each respective upper electrode in the width direction and ~~the~~ a position of the each respective lower electrode in the width direction are substantially aligned ~~aligns with each other~~.

Claim 4 (Currently Amended) The ferroelectric memory device as defined in Claim 2

wherein the width of ~~the~~ each respective upper electrode and the width of ~~the~~ each respective lower electrode are substantially the same, and

wherein a ~~the~~ position of the each respective upper electrode in the width direction and ~~the~~ a position of the each respective lower electrode in the width direction are different ~~from~~ each other.

Claim 5 (Currently Amended) A ferroelectric memory device comprising a plurality of

~~having plural~~ memory cells, each memory cell including ~~composed of~~ a respective memory cell

transistor and a respective memory cell capacitor, such that the ferroelectric memory device

includes a plurality of memory cell transistors and a plurality of memory cell capacitors, wherein

wherein each ~~said~~ respective memory cell capacitor comprises:

_____ a lower electrode ~~that is~~ connected to a bit line via the respective memory cell

transistor;

 a ferroelectric layer ~~that is~~ formed on an upper surface of the lower electrode; and
 an upper electrode ~~that is~~ formed on an upper surface of the ferroelectric layer,
wherein the ~~said lower electrodes~~ electrode of the ~~respective~~ memory cell capacitors are
capacitor is independent from one another for each of the memory cell capacitors,

 wherein the ~~said upper electrodes~~ electrode of the ~~respective~~ memory cell capacitors form
capacitor constitutes a continuous plate electrode covering the lower electrodes of that is
common to the plural memory cell capacitors,

 wherein a position of one edge of ~~the~~ each respective upper electrode substantially aligns
with a position of one ~~an~~ edge of ~~the~~ each respective ferroelectric layer, and

 wherein ~~the other~~ another edge of ~~the~~ each respective upper electrode is inwardly located
at an inner ~~a position with~~ relative to ~~the~~ another edge of each respective ferroelectric layer.

Claim 6 (Currently Amended) The ferroelectric memory device as defined in Claim 5
wherein one edge of each respective lower electrode is inwardly located at a position relative to
one edge of each respective upper electrode, and a position of another ~~one~~ edge of the each
respective lower electrode substantially aligns with a position of another ~~one~~ edge of the each
respective upper electrode.

Claim 7 (Currently Amended) A ferroelectric memory device comprising a plurality of
having plural memory cells, each memory cell including ~~composed of~~ a respective memory cell
transistor and a respective memory cell capacitor, such that the ferroelectric memory device
includes a plurality of memory cell transistors and a plurality of memory cell capacitors, wherein

~~wherein each said~~respective memory cell capacitor comprises:
~~_____ a lower electrode that is~~ connected to a bit line via the respective memory cell transistor;
~~_____ a ferroelectric layer that is~~ formed on an upper surface of the lower electrode; and
~~_____ an upper electrode that is~~ formed on an upper surface of the ferroelectric layer,
~~wherein the said lower electrodes~~electrode of the ~~respective~~ memory cell capacitors are capacitor is independent from one another ~~for each of the memory cell capacitors,~~
~~wherein the said upper electrodes~~electrode of the ~~respective~~ memory cell capacitors capacitor ~~constitutes~~ form a continuous plate electrode covering the lower electrodes of that is common to the plural memory cell capacitors,
~~wherein a position of one edge of the~~ each respective upper electrode substantially aligns with a position of one ~~an~~ edge of ~~the~~ each respective ferroelectric layer,
~~wherein the other~~ another edge of ~~the~~ each respective upper electrode is inwardly located at ~~an inner~~ a position ~~with~~ relative to another ~~the~~ edge of each respective ferroelectric layer, and
~~wherein one edge of the~~ each respective lower electrode is inwardly located at ~~an inner~~ a position ~~with~~ relative to one edge of each respective ~~the~~ ferroelectric layer, and a position of another ~~the other~~ edge of ~~the~~ each respective lower electrode substantially aligns with a position of another ~~an~~ edge of ~~the~~ each respective ferroelectric layer.

Claim 8 (Currently Amended) The ferroelectric memory device as defined in Claim 1
 wherein each respective ~~the~~ lower electrode ~~has~~ includes a groove-type structure.

Claim 9 (Currently Amended) The ferroelectric memory device as defined in Claim 8

wherein a groove formed in ~~the~~ each respective lower electrode extends along a direction that is parallel to ~~the~~ a direction along which ~~the~~ each respective upper electrode extends.

Claim 10 (Currently Amended) The ferroelectric memory device as defined in Claim 8 wherein a direction along which ~~the~~ a groove formed in ~~the~~ each respective lower electrode extends is perpendicular to a direction along which ~~the~~ each respective upper electrode extends.

Claim 11 (Currently Amended) A ferroelectric memory device comprising a plurality of ~~having plural~~ memory cells, each memory cell including ~~composed of~~ a respective memory cell transistor and a respective memory cell capacitor, such that the ferroelectric memory device includes a plurality of memory cell transistors and a plurality of memory cell capacitors, wherein

wherein each ~~said~~ respective memory cell capacitor comprises:

_____ a lower electrode ~~that is~~ connected to a bit line via the respective memory cell transistor;

_____ a ferroelectric layer ~~that is~~ formed on an upper surface of the lower electrode; and

_____ an upper electrode ~~that is~~ formed on an upper surface of the ferroelectric layer,

wherein the said lower electrodes ~~electrode of the respective~~ memory cell capacitors are ~~capacitor is an electrode having a groove type structure that is independent from one another for each memory cell capacitor, and~~

wherein an interlayer insulating film is formed over each respective lower electrode,

wherein a respective groove is formed on the interlayer insulating film formed over each respective lower electrode so as to cover each respective lower electrode, and

wherein the said upper electrode of the each respective memory cell capacitor is formed

in the respective groove and on a circumference area of the respective groove, and forms-
constitutes a continuous plate electrode covering the lower electrodes of that is common to the-
plural memory cell capacitors.

Claim 12 (Currently Amended) The ferroelectric memory device as defined in Claim 11
wherein-a the respective groove formed in on the interlayer insulating film formed over the each
respective lower electrode extends along a direction that is parallel to the a direction along which
the each respective upper electrode extends.

Claim 13 (Cancelled)

Claim 14 (Currently Amended) The ferroelectric memory device as defined in Claim 11
wherein-the each respective lower electrode having the groove-type structure comprises:

a first lower electrode section-in having a planar shape forming that constitutes a bottom
part of the respective groove, and; and

a second lower electrode section forming that constitutes side surface parts and
circumference parts of the respective groove.

Claim 15 (Currently Amended) The ferroelectric memory device as defined in Claim 11
wherein-the each respective lower electrode having the groove-type structure comprises:

a first lower electrode section-that constitutes forming a bottom part of the respective
groove; and

a second lower electrode section-that constitutes forming only side surface parts of the

respective groove.